

IN THE CLAIMS

The listing of the claims will replace all prior versions and listings of claims in this application:

Listing of Claims

Claim 1. (currently amended) A process for decontaminating water, comprising:

selecting as water decontaminate a sorbent material that binds anionic species predominantly through the formation of surface complexes, said sorbent material ~~having~~ comprising a composition including formula $(AB_2X_4)_n$ wherein A is a divalent metals cation, B is a trivalent metals cation, and X is an anion species and n is at least one, selected from the group consisting of oxygen and sulfur, and

decontaminating water by contacting said selected sorbent material with water containing anionic contaminants, the anionic contaminants being from the group consisting of species including chromium and species including arsenic, said decontaminating substantially removing the anionic contaminants.

Claim 2. (cancelled):

Claim 3. (previously presented): The process of claim 1 wherein said sorbent material comprises a chemical substance selected from the group consisting of $MgAl_2O_4$, $MnAl_2O_4$, $FeAl_2O_4$, $ZnAl_2O_4$, $MgFe_2O_4$, $MnFe_2O_4$, Fe_3O_4 , $ZnFe_2O_4$, $NiFe_2O_4$, $CuFe_2O_4$, Fe_3S_4 , $MgCr_2O_4$, $(Mn,Fe)(Cr,V)_2O_4$, $FeCr_2O_4$, $(Ni,Fe)(Cr,V)_2O_4$, $(Co,Ni)(Cr,Al)_2O_4$, MgV_2O_4 , FeV_2O_4 ,

(Mn,Fe)(V,Cr)₂O₄, Mg₂TiO₄, Fe₂TiO₄, Mn₃O₄, CuCo₂O₄, CuBi₂O₄, Mn(Mn, Fe)₂O₄, and ZnMn₂O₄.

Claim 4. (currently amended): The process of claim 2 1 wherein ~~said sorbent material comprises a chemical substance having the first composition, and~~ A is selected from the group consisting of Co²⁺, Cu²⁺, Fe²⁺, Mg²⁺, Mn²⁺, Ni²⁺, Zn²⁺, ~~and combinations thereof, and~~ B is selected from the group consisting of Al³⁺, Bi³⁺, Co³⁺, Cr³⁺, Fe³⁺, Mn³⁺, Ni³⁺, V³⁺, and X is selected from the group consisting of oxygen and sulfur combinations thereof.

Claims 5-8. (withdrawn)

Claim 9. (previously presented): The process of claim 1 wherein said selected sorbent material is the only selected water decontaminant.

Claim 10. (currently amended): The process of claim 9 1, wherein said selected sorbent material is CuFe₂O₄.

Claim 11. (currently amended): The process of claim ~~10~~ 1, wherein the anionic contaminates consist of species including arsenic.

Claim 12. (previously presented): The process of claim 9, wherein the anionic contaminates consist of species including arsenic.

Claim 13. (cancelled):

Claim 14. (new): The process of claim 9 wherein said sorbent material is selected from the group consisting of MgAl_2O_4 , MnAl_2O_4 , FeAl_2O_4 , ZnAl_2O_4 , MgFe_2O_4 , MnFe_2O_4 , Fe_3O_4 , ZnFe_2O_4 , NiFe_2O_4 , CuFe_2O_4 , Fe_3S_4 , MgCr_2O_4 , $(\text{Mn,Fe})(\text{Cr,V})_2\text{O}_4$, FeCr_2O_4 , $(\text{Ni,Fe})(\text{Cr,V})_2\text{O}_4$, $(\text{Co,Ni})(\text{Cr,Al})_2\text{O}_4$, MgV_2O_4 , FeV_2O_4 , $(\text{Mn,Fe})(\text{V,Cr})_2\text{O}_4$, Mg_2TiO_4 , Fe_2TiO_4 , Mn_3O_4 , CuCo_2O_4 , CuBi_2O_4 , $\text{Mn}(\text{Mn, Fe})_2\text{O}_4$, and ZnMn_2O_4 .

Claim 15. (new) A process for decontaminating water, comprising:

selecting as water decontaminant a sorbent material that binds anionic species predominantly through the formation of surface complexes, said sorbent material having a formula $(\text{AB}_2\text{X}_4)_n$,

wherein:

n is at least one;

A is selected from the group consisting of Co^{2+} , Cu^{2+} , Fe^{2+} , Mg^{2+} , Mn^{2+} , Ni^{2+} , and Zn^{2+} ;

B is selected from the group consisting of Al^{3+} , Bi^{3+} , Co^{3+} , Cr^{3+} , Fe^{3+} , Mn^{3+} , Ni^{3+} , and V^{3+} ;

X is selected from oxygen and sulfur;

decontaminating water of arsenic contaminates by contacting said selected sorbent material with water containing anionic contaminates, the anionic contaminates being from the group consisting of species including chromium and species including arsenic, said decontaminating substantially removing the anionic contaminants, and

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wherein the selected sorbent material is the only selected water decontaminant.